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EXAMINER	
NAHAR, QAMRUN	

ART UNIT	PAPER NUMBER
2191	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/789,530	YELLIN ET AL.	
	Examiner	Art Unit	
	Qamrun Nahar	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/14/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 have been examined.

Specification

2. The use of the trademark JAVA has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

3. Claim 8 is objected to because of the following informalities: "a one value" on line 2 of the claim should be "an one value". Appropriate correction is required.

4. Claim 15 is objected to because of the following informalities: "The **method** of claim 14" on line 1 of the claim should be "The **computer readable medium** of claim 14". Appropriate correction is required.

5. Claim 18 is objected to because of the following informalities: "a one value" on line 2 of the claim should be "an one value". Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 9 and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claims 9 and 19 contain the trademark/trade name JAVA. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe an execution environment and, accordingly, the identification/description is indefinite.

9. Claim 20 recites the limitation "the image" in line 16 of the claim. There is insufficient antecedent basis for this limitation in the claim. Therefore, this limitation is interpreted as "an image".

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claims 10-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

12. Claim 10 reciting a "computer readable medium", is not limited to tangible storage devices in view of pg. 21, lines 17-20, in the instant specification, which suggests that such a medium may be a carrier wave or transmission medium (intangible). Accordingly, claim 10 does not recite tangible manufactures, and are non-statutory subject matter.

As per claims 11-19, these claims are rejected for failing to cure the deficiencies of the above rejected base claim 10.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Nevill (US 2004/0193828).

Per Claim 1:

The Nevill publication discloses:

- providing a first stack map that is associated with a first bytecode of a method and a second stack map that is associated with a second bytecode of the method ("... an operand stack reference table (akin to a stack map) ..." in par. 0056, lines 1-7; and "... every bytecode of the method area along that path is checked to see if it modifies the stack." in par. 0062, lines 9-11)

- applying an operation of the second bytecode to determine an effect on the first stack map, the effected first stack map defining a resulting stack map ("This allows stack depth to be tracked and allows monitoring of what variable types are pushed and popped by the stack along the identified execution path." in par. 0062, lines 11-13)

- comparing the resulting stack map with the second stack map; and if the resulting stack map matches the second stack map, removing the second stack map from the class file, the removal of the second stack map operating to reduce the size of the image of the class file ("stack reference table created at stage 330 is used at the subsequent stage 340 ... stage 340 involves correlation of memory reference values stored in stack slots with objects in heap memory to which memory areas have been allocated by the processing task ... stage 350 where all uncorrelated heap memory areas, which correspond to garbage, are subjected to a memory management operation. The result of the memory management operation is that heap memory areas are freed for reallocation by the executing program." in par. 0062, lines 14-27).

Per Claim 2:

The Nevill publication discloses:

- wherein the second stack map is capable of being derived from the first stack map when the resulting stack map matches the second stack map (par. 0062, lines 18-20).

Per Claim 3:

The Nevill publication discloses:

- wherein the operation of the second bytecode operates on a stack (par. 0062, lines 7-12).

Per Claim 4:

The Nevill publication discloses:

- wherein each of the first and second bytecode is a computer object code (par. 0049, lines 6-7).

Per Claim 5:

The Nevill publication discloses:

- wherein each of the first and second bytecode is defined by one or more of a POP, a POP2, a DUP, a DUP2, a DUP_XI, a DUP2_X1, a DUP_X2, a DUP2_X2, an INVOKE, and a SWAP (par. 0062, lines 11-13).

Per Claim 6:

The Nevill publication discloses:

- wherein each of the first, second, and resulting stack maps is an entry that describes a state of a stack at various points of a program (par. 0062, lines 9-11).

Per Claim 7:

The Nevill publication discloses:

- wherein each of the first, second, and resulting stack maps is an entry that identifies a stack entry as an integer or an object (par. 0056, lines 19-21 and see Figure 4, item 450).

Per Claim 8:

The Nevill publication discloses:

- wherein the entry is a single bit defined by one of a zero value or a one value (par. 0056, lines 19-21 and see Figure 4, item 450).

Per Claim 9:

The Nevill publication discloses:

- wherein the image is a read-only memory (ROM) image capable of being executed by a Java virtual machine (par. 0049, lines 6-7).

Per Claim 10:

The Nevill publication discloses:

- program instructions for providing a first stack map that is associated with a first bytecode of a method and a second stack map that is associated with a second bytecode of the method ("... an operand stack reference table (akin to a stack map) ..." in par. 0056, lines 1-7; and "... every bytecode of the method area along that path is checked to see if it modifies the stack." in par. 0062, lines 9-11)

- program instructions for deriving the second stack map from the first stack map by abstract interpretation of the second bytecode ("This allows stack depth to be tracked and allows monitoring of what variable types are pushed and popped by the stack along the identified execution path." in par. 0062, lines 11-13)

- and if the second stack map is capable of being derived, program instructions for removing the second stack map from the class file, the removal of the second stack map

operating to reduce the size of the image of the class file ("stack reference table created at stage 330 is used at the subsequent stage 340 ... stage 340 involves correlation of memory reference values stored in stack slots with objects in heap memory to which memory areas have been allocated by the processing task ... stage 350 where all uncorrelated heap memory areas, which correspond to garbage, are subjected to a memory management operation. The result of the memory management operation is that heap memory areas are freed for reallocation by the executing program." in par. 0062, lines 14-27).

Per Claim 11:

The Nevill publication discloses:

- wherein the program instructions for deriving the second stack map from the first stack map by abstract interpretation of the second bytecode includes: applying an operation of the second bytecode to determine an effect on the first stack map, the effected first stack map defining a resulting stack map (par. 0062, lines 11-13).

Per Claims 12-19:

These are computer readable medium versions of the claimed method discussed above (claims 2-9, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also anticipated by Nevill.

Per Claim 20:

This is a system version of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also anticipated by Nevill.

Conclusion

15. Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (571) 272-3730. The examiner can normally be reached on Mondays through Fridays from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y Zhen, can be reached on (571) 272-3708. The fax phone number for the organization where this application or processing is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QN
April 25, 2007

WEI ZHEN
SUPERVISORY PATENT EXAMINER